GOUDSMIT
MAGNETIC SYSTEMS

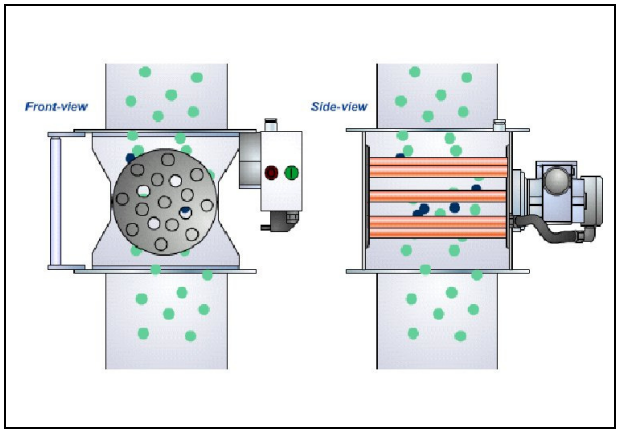
User Manual

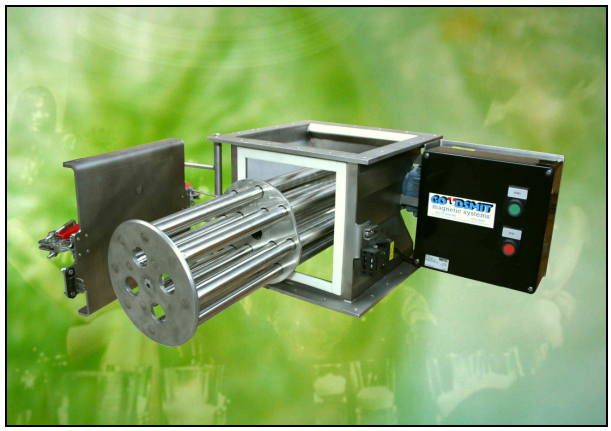
Neoflux® Rotary Quick-cleaning Clean Flow Magnet, series SECR… / SCR..

Fe separator by permanent magnetic force

☺ Suited for removal of ferromagnetic (like iron) parts out of powders and granulates

☹ Not suited products that have a bad flowing capacity





The descriptions and pictures in this manual, used for explanation, may differ from your execution.
We have enclosed the as-built drawing of the delivered article.

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Versions overview of standard manual

Versions overview of standard manual

Version	Date	Description
1.0	01-1998	First saved version of this manual
2.0	09-2004	Complete renewed version
2.1	10-2006	Remarks regarding ATEX added (pages 7, 8, 9, 22 en 27)
2.2	02-2007	Revisions page added
2.3	06-2007	1. Surrounding temperature range adjusted to -20°C to 40°C as prescribed by ATEX guideline (page. 12). 2. Identification plate example changed acc. to ATEX guidelines, like notified body number added.
2.4	06-2008	Chapter Trouble shooting changed to Malfunctions/service
3.0	08-2009	Specifications sheet and declaration by the manufacturer removed from user manual
3.1	03-2010	Info added about the oil seal rings in the motor mounting flange on the housing, the air coupling between them and the possible extra bush for types SECR with an extended motor shaft.

Foreword

Read this user manual thoroughly and ensure that you fully understand its contents before operating the device.

If you have any queries or require further explanation regarding any subject specifically related to the magnet, please do not hesitate to contact **GOUDSMIT magnetic systems**

All technical information contained in this manual, together with any relevant drawings and technical descriptions we supply, remain our property. It may not be used other than for the benefit of service to, or operation of the product. It may not be copied, duplicated or disclosed to any third parties without our prior written permission.

Extra manuals may be ordered by contacting our support staff. They will require the device description, article number and the order number (ORxxxxxx) on the identification plate.

- This manual and the declaration by the manufacturer should be valued as a part of your device
- Both should remain with the device if it is sold
- The manual must be made available to all operators, service technicians, and others who work with the device during its complete life-cycle.

List of contents

Versions overview of standard manual **2**
Foreword **3**
List of contents **4**
General **5**
This Manual 5
Ferromagnetism 5
Conditions of supply and guarantee 6
Delivery 7
General *7*
Identification plate *7*
Description Goudsmit Ex code dust zones *8*
ATEX explosive zone measures *8*
Safety **9**
General 9
Danger of magnetic field 10
Danger of exposed energized parts 11
Danger of dust explosion 11
Device description **12**
Intended use / user indications 12
Deliverable specials 13
Working principle 14
Construction 15
Magnet bar tubes remarks 16
Avoid damage *16*
Cleaning *16*
Installation **17**
Placing and transport procedures 17
Closure material / grounding 17
Electrical connections general 18
Connecting the supply voltages *18*
Electrical connections in switch box *19*
Electrical motor installation *20*
Electrical connections & EX *20*
Startup **21**
Checks before and during startup 21
Maintenance **22**
Cleaning the rotor (Fe parts disposal) 22
Cleaning when rotor mounted to housing *23*
Cleaning when rotor is mounted to door *24*
Cleaning & ATEX 25
Thermal safety 25
Motor reductor 26
Malfunctions/Service **27**
Spare Parts **28**

General

This Manual

This user manual contains information for the correct functioning and maintenance of your device. It also contains instructions for avoiding possible injury and serious damage and allowing a safe and as trouble-free functioning of the product as possible. Read this manual thoroughly before putting the device into operation, familiarise yourself with the operation and control of the device and follow all instructions precisely.

- *The data published in this instruction manual are based on the available information at the time of delivery. This is issued subject to later amendment.*
- *We retain the right to amend or modify the construction and/or model of our products at any time whatsoever without any obligation to modify any previously supplied products accordingly.*

Ferromagnetism

The working principle of the device rests on (Ferro)magnetism.

Ferromagnetism is de basic mechanism by which certain materials such as iron cobalt and nickel form magnets or are attracted to magnets. Magnetics are formed by the application of an external magnetic field. Magnetics that remain magnetic after the external magnetic field is removed, are permanent magnets. Temporary magnets lose their magnetism after the external magnetic field is removed. Most alloys of iron, cobalt and nickel are magnetic. However, some stainless steel alloys like AISI304 or AISI316 are only slightly magnetic.

Because in most cases it will be Fe parts that will be Ferro-magnetically influenced, we will use the term 'Fe' in this user manual when we mean ferromagnetic material

Conditions of supply and guarantee

The conditions of supply are the **"General Conditions for the supply and erection of mechanical, electrical and electronic products" (SE01)**, as in September 2001 published by ***Orgalime***, in Brussels.
These conditions can also- if desired – be requested by writing to Goudsmit Magnetic Systems B.V., as also mentioned in our written quotation.

The guarantee prescriptions are mentioned in these conditions

The guarantee on your equipment will be void if:

- service and maintenance is not performed in accordance with the instruction manual or by servicemen who are not especially trained to do the work. We strongly recommend that specific magnetic service and maintenance be carried out by Goudsmit personnel);
- Modifications are made to the equipment without our prior written permission;
- non-original parts or non 100% exchangeable parts are used;
- lubrication products other than those prescribed are used;
- the equipment is used injudiciously, incorrectly, negligently or not in accordance with its intent and/or purpose (see chapter "Intended use / user instructions").

All parts that are subject to wear are excluded from the guarantee

Remaining remarks / warnings:

- Use the device only for the application for which it has been designed (see chapter *"Intended use / user instructions"*);
- Use the device only when it is in technically perfect condition, and ensure that all protective hoods or inspection covers, including all safety circuits, have been fitted and installed in the correct manner;
- Ensure that device maintenance is appropriate and in accordance with the instructions provided in this user manual;
- Any eventual faults, in particular those that may influence safety, should be attended to immediately and remedied before renewed operation. Should you, after estimating the risks of an unsolved fault, still think it is safe to keep the device into operation, then warn the operators and maintenance staff of these faults and the danger(s) caused by these faults.

Delivery

General

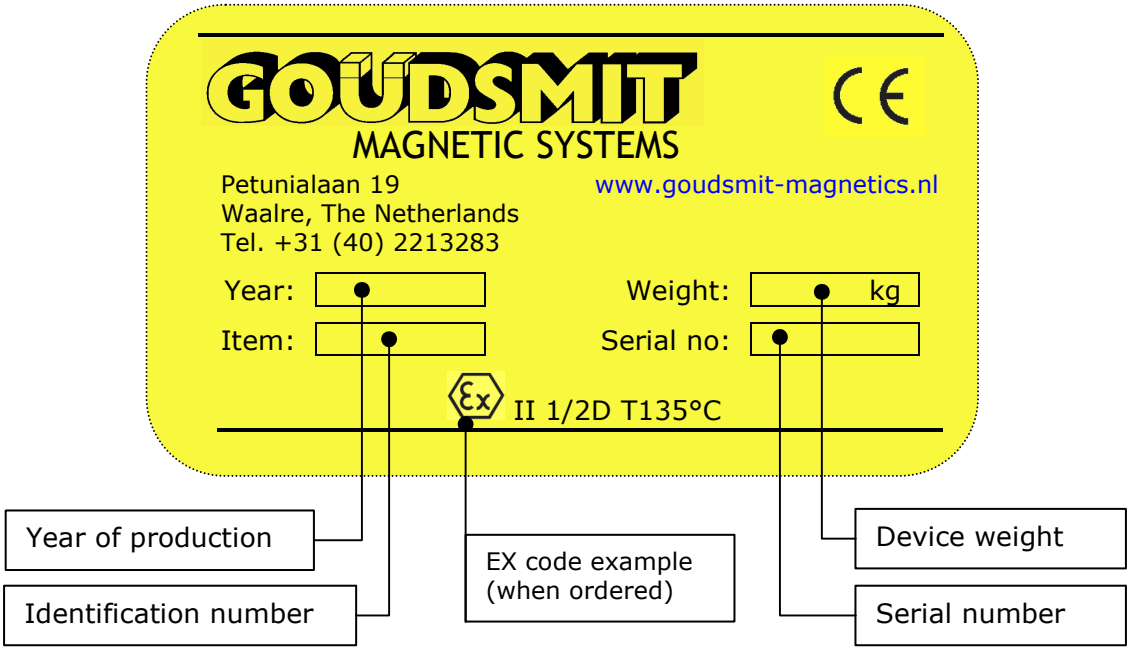
Check the shipment immediately on delivery for:

- Possible damage and/or shortcomings as a result of transport.
- Ask the transporter to draw up a transport damage report immediately in case of damage.
- Completeness of the delivery/deliveries, the absence of anything (additionally) ordered.

Always immediately contact **GOUDSMIT magnetic systems** in the event of any damage and/or mistaken delivery.

Identification plate

On the device you will find an identification plate as pictured below. **Information on this plate is of great importance in case of service**. That is why we advise to maintain this plate on the device at all times. Ensure that it is always legible by cleaning regularly (cleaning!). This is especially important if fast delivery of spare parts is requested



Don't forget to make note of the Serial Number and the Item number in case of breakdown(s) and or delivery of spare parts.
If your identification plate is damaged, contact us and we will send a new one as soon as possible.

Description Goudsmit Ex code dust zones

When the device is ordered for use in a dust Ex zone, then a dust Ex code is added to the identification plate, which describes the category to which the device complies:

- Code example: II 1D/2D c T140°C
- Explanation:

  II ➔ explosion group (I is underground mining, II is other)

  1D/2D ➔ Category (1 = very high, 2 = high, 3 = normal) (D = dust)

  Zone (20 , 21 , 22) (allowed to be used in …..)

  1D inside device / 2D outside device

  c ➔ Type of Ex protection used by Goudsmit

  T140°C ➔ Maximum surface temperature in relation to dust

  When the device complies to category 1D, then the name and number of the certifying entity are also added to the identification plate, as also the certification number of the device.

ATEX explosive zone measures

- If the device has been ordered for use in an Explosive area, then it is manufactured in compliance to the correct IP class. Ensure that no higher surface temperature arises then permitted by ATEX.

  The ATEX marking on the Goudsmit identification plate only applies to the product produced by Goudsmit.

- The ATEX certified magnetic device requires additional purchase parts to be carried out to the ATEX standard. This includes control units, connection box(es), switch(es), sensor(s) and pneumatic parts.

  The ATEX purchase parts are provided with their own ATEX markings.

The final ATEX classification of the assembled apparatus may be lower than the ATEX marking indicated on the Goudsmit identification plate, if the mounted parts have a lower ATEX marking.

Safety

This chapter describes what dangers there are in connection with the device. Warning pictograms are placed on the device where necessary. This chapter explains the meaning of possibly placed pictograms.

Get to know the relevant warning pictograms!

! *Regularly check that all warning pictograms are still present and legible, clean if necessary. Ensure that new pictograms are applied at the correct locations if there have been lost or damaged.*

General

The device is provided with screens where necessary. Nevertheless, ensure that all persons in the vicinity of the device, or those working in the immediate surroundings, wear sufficient personal safety equipment such as overalls, safety glasses, ear protectors, helmet, steel-toed safety shoes, etc. Areas of the device considered dangerous are recognisable by the warning pictograms applied to the device. If the device remains easily accessible to persons, then extra safety precautions (e.g. fencing) should be installed. If safeguards are not possible then ensure that comprehensive instructions are given, possibly supplemented by work directions, part of which can be formed by this manual.

Danger of magnetic field

The magnets generate a powerful magnetic field that strongly attracts ferromagnetic (Fe) materials. Always take into account that these materials may suddenly be very powerfully drawn towards the magnet. This applies to steel workbenches and steel tools, but also to Ferromagnetic materials carried on your person, such as coins in your wallet or your keys. Wherever possible make use of non-magnetic tools and workbenches fitted with a wooden worktop and preferably a non-Fe frame (for instance stainless steel).

! Always be aware that Ferromagnetic parts will be attracted -- even personal items - if you are closer than 0.3 meter to a magnet.

Danger - strong magnetic field

! People fitted with pacemakers should on no account enter the magnetic field (within a radius of at least 1 meters).

Prohibited for people with pacemakers

! Credit cards, chip cards, computer disks/tapes, computer screens, watches, etc. may be damaged or destroyed if they enter the magnetic field (within a radius of at least 0.5 meter).

Danger to magnetic cards

According to the latest scientific consensus, Magnetic radiation has no adverse effects to health.

Danger of exposed energized parts

When installing and electrically connecting the device, ensure that the work is performed by suitably qualified personnel.

! *Always make sure that the electrical power supply has been switched off if work has to be carried out on the device, as some components may be live.*

Danger - Electric shock risk

Always use the main power switch (on the switch box) to switch off the installation in the event of a dangerous situation. Power should never be restored until the dangerous situation has been resolved.

Danger of dust explosion

If this device is made according to an EX dust category (1D/2D/3D, acc. to ATEX 95-directive 94/9/EC) it can accordingly be used in a dust zone (20/21/22, acc. to (ATEX 137-directive 99/92/EC). The Ex category is then described on the identification plate ➔ see also chapter General \ Identification plate.

! *Ensure that the device complies to the right explosion category*.

Danger – dust explosion
(no sticker on device)

Also check whether **the identification plates of mounted parts** show the right Ex category for the Ex zone in which the device will be used.

Device description

Intended use / user indications

Product

The device is suited for separation of ferromagnetic (Fe) parts out of free flowing powder and granular products, **grain size up to 10 mm**, such as flour, sugar, coffee beans, plastics, ceramics, etc.

Not suited for: (moist) products that are sticky and/or badly flowing

Fe particle size

Suited for product flows with Fe particles of **30µm** and larger, depending on magnet strength quality. *See product specs in the appendices for exact Fe parts size specification.*

Product should be free of Fe part size and weight that can cause damage to the magnet bar tubes. Mechanical or other sieving of larger parts is advised.

Foreign part size

Foreign part (like other metals) size that can cause damage to the magnet bar tubes have to be filtered out.

Mechanical or other sieving is advised.

Temperature

Suited for surrounding temperatures from -20 °C up to +40 °C and product temperatures from -20 °C up to +60 °C with standard Neoflux® magnets,

See product specs in the appendices for max. product temperature.

The magnet is to be protected against higher temperatures than prescribed, because the magnet might **lose magnetic force permanently** when exposed to high temperatures

Air pressure

The relative over pressure inside the device must be under 0.2 bar

The relative under pressure inside the device must be under 0.5 bar

Air pressure between seals on motor shaft and housing

If an air coupling is mounted to the motor mounting flange, then the maximum supply pressure 0.05 bar. This pressure may only be connected if an air coupling is mounted. If a closing plug is fitted, then the system is not suitable for applying an overpressure.

Free space

Make sure that there is approximately 1 meter of free space around the SECR to perform and ease the inspection and maintenance operation.

Noise level

The noise level generated by the device is (way) below 70 dB(A).

Vibrations

The magnet is to be protected against strong external vibrations, because the magnet might **lose magnetic force permanently** and or the brittle ceramic magnet material might break.

The only vibrations caused by the SECR are caused by the moving and rotating magnet bars. The product channel in which the device is mounted has to be stiff enough to damp out the (relatively small) forces of the moving and rotating magnet bars.

Cleaning

Minimum 2x per day cleaning (Fe parts disposal) of the device is advised for an optimal magnetic separation and to prevent Fe accumulation on the magnet bar tubes and the problems that can be caused by that. Clean more often when the magnets catch a lot of Fe parts and less often when proven that 2x per day is too much. Clean magnets have the best separation result, so make sure to clean more often than assumed necessary, to achieve a satisfactory result of the magnet device.

For more dirt cleaning: see chapter *Maintenance*

Deliverable specials

High product temperatures

For high product temperatures there is the possibility of using other magnet material than the standard Neoflux® magnets. See product specs in the appendices.

Abrasive products

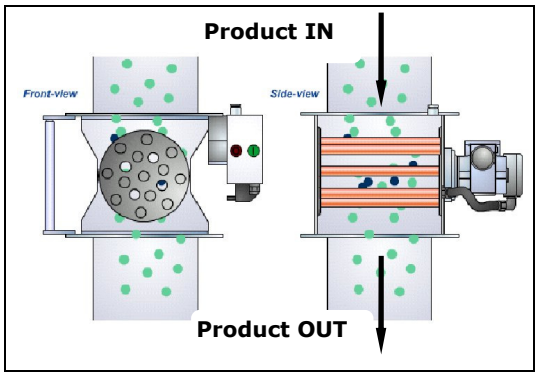
If you have an abrasive product, we can supply the magnet bars and /or inside housing with a protective coating, like for instance a tungsten carbide coating.

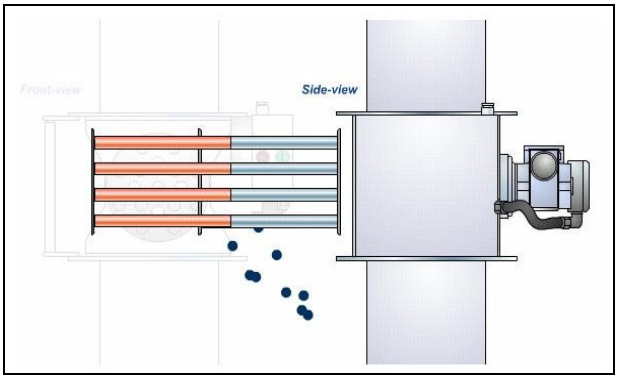
Use in FOOD product flows

The SECR can be adapted so that it can be used in almost any food stream. It's standard execution already has little gaps in the, already complete SS AISI316, product channel. The product channel (or even complete housing + magnet bars) can be delivered in gap-free SS AISI304 or AISI316, or in combination with other – for instance prescribed or delivered by customer – food improved materials. Surface treatments like electrolytic polishing, staining, etc. are naturally possible.

Working principle

- The **rotating clean flow magnet SECR** is suited for separation of ferromagnetic (Fe) particles out of product flows, up to app. **40 m³/hour** for the larger SECR types.
- By rotation of the magnet bars on a rotor, bridge forming on the bars is relatively little and thus a much better Fe separation result is created.
- For becoming a high quality de-ironing processes, clean flow magnets have a very high magnetic field value on the magnet bars. The "sticking" strength of the magnets and the speed of the rotor can be differently designed, varied with the flow rate, type of product and magnet selection.





Figures: Basics of Fe separation process

Cleaning by pulling out rotor and extractor

- The product, contaminated with Fe parts, passes one or more magnet bars while flowing through the rotating clean flow magnet.
- The Fe parts will be 'sucked' towards a magnet bar and will cling onto it.
- The Fe parts will stay on the bar until the magnet bars will be cleaned of the Fe parts

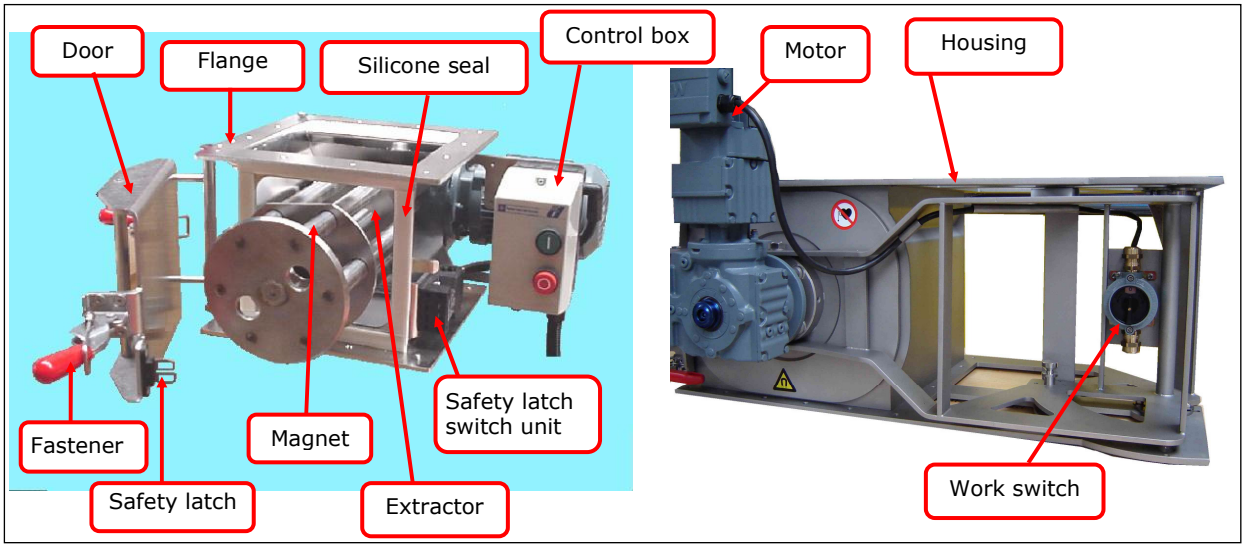
Before a cleaning action the product flow needs to be temporarily interrupted

- Cleaning the magnet bars of the Fe parts is very easy; the magnets can be simply pulled out of the surrounding stainless steel tubes. When this is done the Fe parts will instantly fall off the tubes and can then be caught and/or transported.

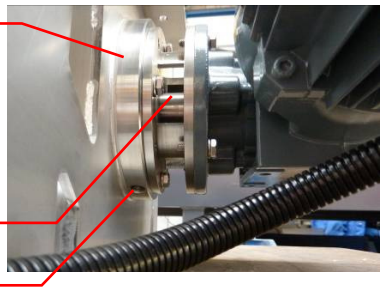
To see the working principle in moving action:
➔ Watch our website video: http://www.goudsmit-magnetics.nl/uk/systems/ontijzering/flash_secr.htm

For an additional description of the cleaning process:
➔ See also chapter Maintenance / Cleaning the extractor.

Construction



1. The actual magnet unit is the – outside complete SS AISI316 – **rotor**, consisting of an **extractor** and several very strong **Neoflux® magnet bars**.
2. The extractor consists of 2 flanges with tubes welded or soldered in-between.
3. The magnet bars are 1 side-mounted to a flange and form the magnet part of the rotor together, that fits exactly into the extractor part of the rotor.
4. The motor is a flange motor and is bolted to the SS **housing**.
5. The housing has an **inlet and an outlet flange** with holes for bolted mounting.
6. The rotor can be taken out of the housing for cleaning or inspection, by opening the **door**, which is held tidily closed by **2 fastener clamps**.
7. Between motor and housing 1 or 2 **oil seal ring(s)** is (are) mounted to prevent for oil leakage into the product stream AND product leakage out.


Bush with oil seal ring(s)
Extra bush for types with extended motor shaft
Extra air supply connection (max. 0.05 bar): air between oil seal rings

8. When 2 oil seal rings are mounted, then also an **air coupling** is mounted, to provide slight overpressure between the 2 oil seal rings. This overpressure provides additional safety against leakage of oil into and product leakage out of the product canal.
9. Types SECR with an extended motor shaft have an **extra bush** between housing and motor to be able to discover oil loss through the shaft more easily and so further reduce the danger of motor oil penetrating into the product canal.
10. The **start (green) and stop (red) buttons** are located on the (optional) **switch box**; the motor can be turned off (during an **emergency)** by pushing the stop button, or by turning the **work switch** for devices with only a work switch.
11. The switch box is connected to the **safety latch switch unit**; when the door is opened during production, the motor will shut off. The **safety latch** is locked into the latch safety switch unit.
12. The **silicone seal** at the door prevents leakage of product out and dirt into the device.

Magnet bar tubes remarks

Avoid damage

- The clean-flow has fragile magnet bar tubes. The tubes have a very small wall thickness, which ensures a high grade of déferrisation. Big, heavy Fe and/or other parts in the product flow can however create bumps in the tubes.

Ensure that heavy parts are filtered out of your product flow before it passes the clean flow!
Placing of a mechanical or other sieve in front of the device is advised!

- During maintenance or cleaning operation it is also advised to be very careful with the magnet bar tubes to avoid damage.

- When tubes are damaged it is possibly difficult to move the magnets inside the tubes; when this occurs it is advised to revise the tube(s) or (preferred) to let the tubes be revised by Goudsmit to avoid further damage.

Damage to the magnet bar tubes and/or damage caused by damaged magnet bar tubes (when used) is/are not covered by guarantee.

Cleaning

The cleanflow and its magnet bar tubes are best cleaned by pressurized air and/or soft cloth. Also it is possible to deep clean the magnet bars with special cleaning fluids that do not harm the (SS) material.

➔ *also see chapter Maintenance*

Installation

Placing and transport procedures

The rotating clean-is always to be lifted by 4 lifting lugs!

Keep the centre of gravity into consideration. This is not in the middle of the device, but closer to the motor side.

- Use proper lifting devices that suit with device's weight. Clear the area under the magnet during transport.

Read the weight of the clean flow magnet on the identification plate.

- The device is delivered in a wooden box. Bolt a lifting lug to each of the 4 corners of the magnet housing flange for stable transport process. Keep each corner on the same level for proper alignment before installation.
- Close the door and quick locking mechanisms properly to prevent the extractor and magnets of falling out of the housing. Check that the rotor (extractor and magnets) is clamped tidily to the shaft.
- Bolt the flanges of the device tidily to the inlet and outlet flange of your product canal. Improper alignment and loose assembly may cause leakage of raw product. Ensure that the channels are strong enough to support the weight of the clean flow magnet and raw product in it.
- It is best to install the clean flow magnet in a well reachable height to the operators. A good height eases the cleaning process.
- Avoid any impact during transport to prevent damage, especially to the rotor. Damage to the extractor can cause magnets to "stick" into the extractor.

Closure material / grounding

Make sure that all closure and or packing material between the magnet device and your product channel has a surface resistance of less than 1 GΩ at (23±2) °C and (50±5)% relative humidity.

Sufficient grounding is also possible by placing a suitable grounding over the connections between the magnet device and your product channel.

Electrical connections general

Always make sure that the electrical power supply has been switched off before commencing maintenance/work and make sure that it cannot be turned on again without your knowledge.

Make sure that all electrical connections are made skilfully and safely, and see that all locally applicable electrical connection standards and regulations are complied with.
The electrical connection values are stated on the identification plate and or on the electrical drawings. Before connecting check that these values correspond to the locally applicable values, and make sure that the connecting cables have been correctly calculated for the levels of electrical power required.

If a control box is a part of the delivery, then all connection specifications of the (optional) control box can be found in the added electrical scheme(s) and or special drawing(s).

The electrical supply voltages of the motor are indicated on the type plate of the motor.

Connecting the supply voltages

The electrical supply voltages of the (optional) control box can be found in the connection diagrams attached in the Appendices.

Device with control box in delivery:
Connect your voltage to the clamps L1, L2, L3 and earth of the control box.

No control box in delivery:
Connect as recommended in the electrics diagram added in Appendices. **Make sure that the motor stops when the door is opened while motor is turning!**

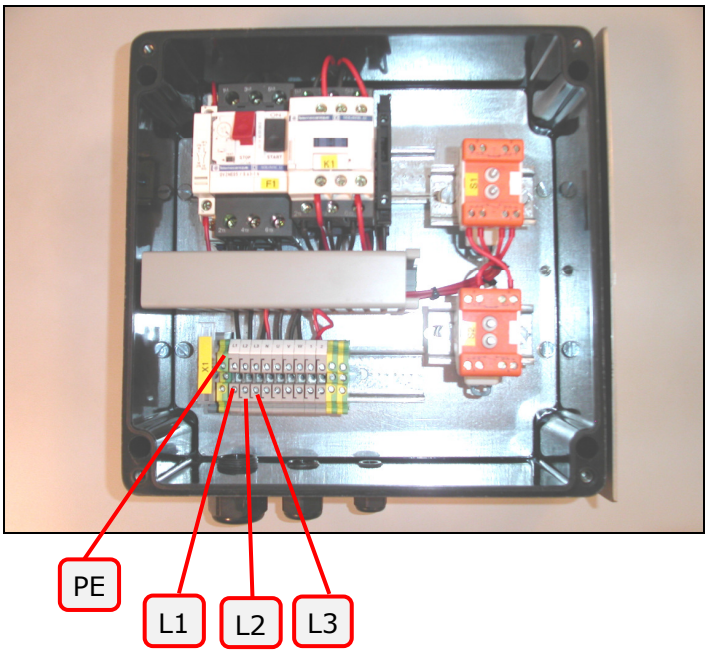


Photo: connecting supply voltages

Electrical connections in switch box

Connect the electric parts in the switch box preferably according to the diagram(s) added to the user manual.

✓ Check the electrical connection to be correct by executing the following procedure, ***after switching on the mains supply:***

1.	close the door of the clean-flow	➔ motor should not react;
2.	push the start button*	➔ motor should start;
3.	open the door	➔ motor should stop;
4.	re-close the door	➔ motor should not react;
5.	push the start button*	➔ motor should start;
6.	push the stop button*	➔ motor should stop

** If no switch box is in delivery, but a work switch is, then text "push (…) button" has to be replaced by "turn work switch".*

Photo: box ATEX II 1D

Photo: box ATEX II 2D

Photo: box standard

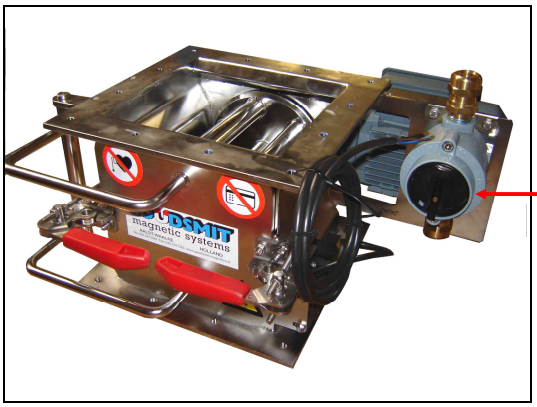
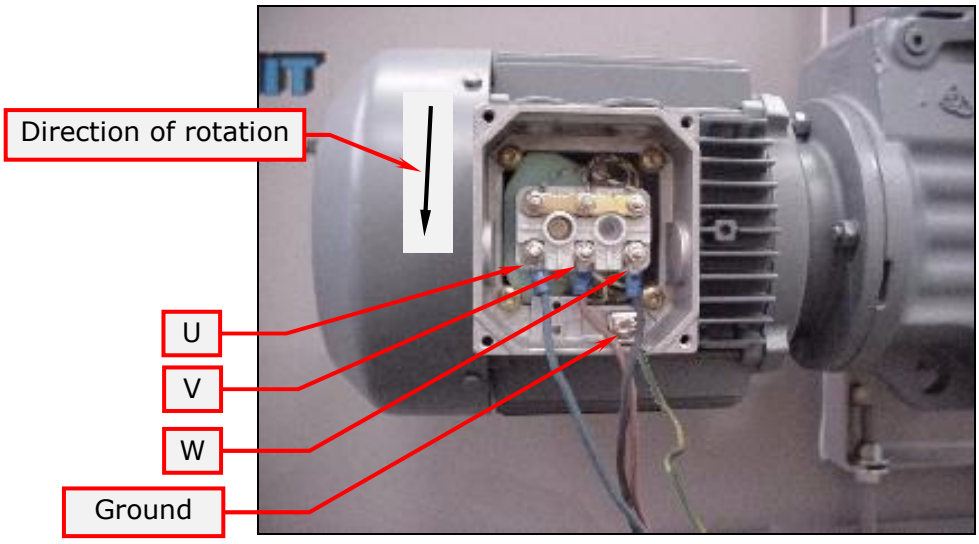


Photo: work switch

Electrical motor installation

Check that the rotation direction of the driving motor is correct:
This can be checked by briefly switching the motor ON.
If the direction of rotation is incorrect, reverse 2 of 3 phases (U - V):
(*It makes no difference whether you have a **Y** or a **Δ** circuit!)*



Electrical connections & EX

When the device is placed in an Ex zone, everything you add or change to the device's electrical installation must be executed and documented according to the regulations for the specific Ex zone.

Startup

Checks before and during startup

It is essential to comply with the safety notes in this user manual during startup!

Before startup, make sure that:

- the device / the installation has no damages or malfunctions;
- all connections (electrical, mechanical, pneumatical) have been made properly;
- the device / the installation is placed and situated correctly;
- all protective covers (when of application) have been fitted correctly;
- there are no other sources of danger present

During startup, make sure that:

- the device / the installation has no damages or malfunctions;
- the motor is running correctly (no overload, no speed fluctuation, no loud noises, etc.);
- the motor rotation has the right direction;
- all other parts of the device / the installation function as described in chapter *Device description*, completed with the function descriptions in the added data sheet.

Maintenance

Magnetic systems attract dust and Fe particles. Regular cleaning of any device fitted with a magnetic system is therefore essential. A clean magnet functions considerably more efficient than a heavily contaminated magnet.

All parts are best cleaned by pressurised air and/or soft cloth. Also it is possible to deep clean with special cleaning fluids that do not harm the materials

Regularly check that all warning pictograms and the identification plate are present at the correct locations on the device. If warning pictograms or the identification plate should get lost or damaged, then immediately apply new ones at the original locations.

Always inform operating personnel well in advance regarding planned inspections, maintenance, repairs and when attending to failures or breakdowns.
Make someone responsible who also exercises supervision.

Because of the low rotational motor speed the motor, bearings and oil seal ring are not heavy loaded. Normal wear can however always occur.

- After a few years the oil seal ring in the back side (motor side) of the housing will probably need to be replaced by a new one.
- Depending on how abrasive the product is, the extractor tubes can show wear.

Execute all work to the device while motor and product flow is stopped. Be careful with tools: when power is off, the magnet force is still present.

Cleaning the rotor (Fe parts disposal)

To see the cleaning process in moving action:
➔ watch our website video: http://www.goudsmit-magnetics.nl/uk/systems/ontijzering/flash_secr.htm

Clean the extractor on regular basis to maintain a maximum performance. An overloaded magnet will easier "loosen" Fe particles. These particles will subsequently be swept away by the incoming raw product into the outlet canal. Also, there will be less Fe particles attracted by the magnets, due to the larger distance.

Moreover a full magnet can block the magnet rotor, as a result of which the rotor and/or the motor might break.
The frequency with which you need to clean depends on the volume flow of your product and the quantity Fe particles in it per volume entity. This frequency can thus only be stipulated by you, by watching well after how much time the magnet is polluted with Fe particles.

STOP THE PRODUCT FLOW before opening the magnet's door!

Cleaning when rotor mounted to housing

1. Stop the production process before turning off the device.
Wait till the last amount of raw product has left the outlet canal.

2. Stop the motor/rotor.

3. Wait till the rotor has completely stopped and then open the housing door by first loosening the fastener clamps.

Photo: taking out the rotor

4. Remove all rotor parts, including the extractor and magnet bars. **DO NOT pull the magnets out of the shaft**; this will cause Fe particles to fall into the outlet canal.

Photo: place on non-magnetic ground and push magnet unit out of extractor unit

5. Place the rotor on an non-magnetic underground. Pull the magnets out by placing your thumbs into the holes and pulling the magnet flange with your fingers.

Photo: pull out magnet bar unit

6. Pull the magnet bars out of the extractor and place them - not in the neighbourhood of ferromagnetic materials – far enough away from the extractor. The iron particles will fall of from the extractor and can be caught and removed.

Take care that the Fe parts on the extractor tubes do not 'shoot' to the magnet bars, while it will be very difficult to remove them from the magnets afterwards!

7. Clean the magnet bars and the inside of the extractor tubes thoroughly to avoid the magnet bars to get 'stuck' in the extractor tubes after mounting. Cleaning is best done with pressed air and/or soft clothes.

If you choose to clean 'wet', then be sure to replace the parts fully dry.

8. Replace the magnets into the rotor. Possibly the magnet bars have to be slightly "guided" into the extractor holes.

9. Shove the entire rotor over the axle in the housing, until the rotor is fully inside the housing. You will feel the rotor to clamp over the axle.

10. Close the door

11. Tighten the fasteners

12. Re-start the motor.

13. Re-start the product flow.

We also have special rotating clean-flow magnets with semi-automatic cleaning. The magnet can then be cleaned, hanging outside the housing, without having to take the rotor away from the housing.

Cleaning when rotor is mounted to door

Replace steps 4-5-6 by:

4. Make sure to open the door minimum 90°.

5. Pull the extractor unit off the magnet unit in a horizontal line. The Fe particles will move with the extractor and fall off downwards, where they can be caught and disposed of.

Cleaning & ATEX

Avoid dust bridges to avoid unnecessary ignition risk that arises from heating up of these dust bridges. If dust bridges heat up they can create a burning deposit of dust, which can ignite a passing dust cloud to an explosion, or can create the dust layer to become a self-exploding dust cloud. In time cleaning can thus eliminate this explosion cause.

Thermal safety

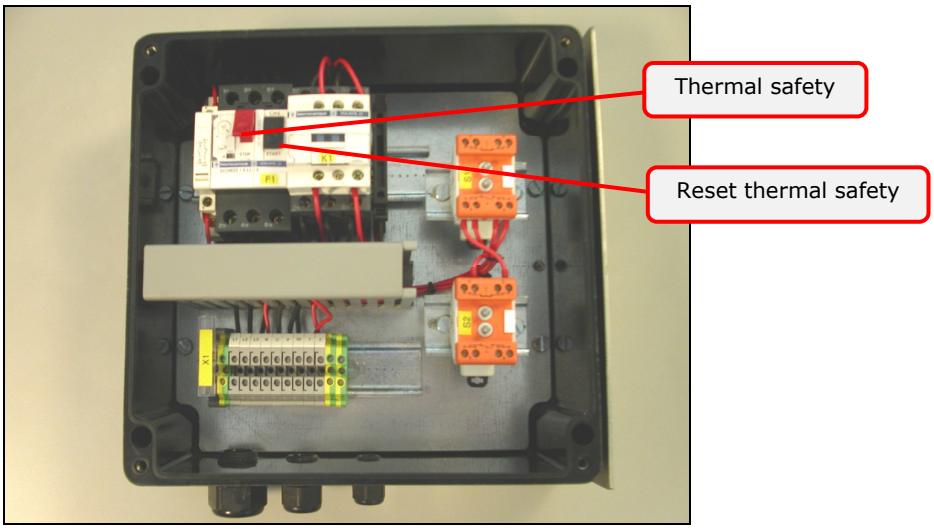


Photo: thermal safety inside Goudsmit-standard ATEX switch box.

When the motor gets overloaded, the thermal safety (in standard (ATEX) switch box) comes in. It is possible to reset this safety switch by pushing the black RESET button inside the switch box (after you cleared the cause that is!!!)

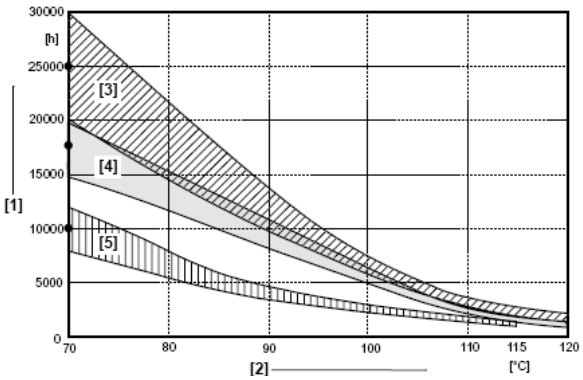
Motor reductor

De-energize the motor and secure the energizer to prevent it from being switched back on inadvertently. Wait until it has cooled down – **Danger of burns**

- ✓ Regularly check whether the motor makes more noise than usual or whether it is warmer than normal. If that is the case, find out what the cause is and solve the problem(s) as soon as possible to prevent for (further) damage.
- ✓ In table below general inspection and maintenance intervals are shown as an indication of the inspection and maintenance that is needed.

Table: general motor reductor inspection and maintenance intervals

REDUCTOR	
Frequency	**What to do?**
• Every 3000 machine hours, at least every 6 months.	• Check oil and oil level. • Check the seals visually for leakage. • For gear units with a torque arm: Check the rubber buffer and change it, if necessary
• Depending on the operating conditions (see chart below), every 3 years at the latest. • According to oil temperature.	• Change mineral oil. • Replace anti-friction bearing grease (recommendation). • Replace oil seal (do not install it in the same track).
• Depending on the operating conditions (see chart below), every 5 years at the latest. • According to oil temperature.	• Change synthetic oil • Replace anti-friction bearing grease (recommendation). • Replace oil seal (do not install it in the same track).
• Some gear units (like SEW R07, R17, R27, F27 and Spiroplan®) have lubrication for life and are therefore maintenance- free	
• Varying (depending on external factors)..	• Touch up or renew the surface/anticorrosion coating
MOTOR	
Frequency	**What to do?**
• Every 10,000 hours of operation	Inspect the motor: • Check ball bearings and change if necessary • Change the oil seal • Clean the cooling air passages



[1] Operating hours
[2] Sustained oil bath temperature
Average value per oil type at 70 °C
[3] CLP PG (Polyglycol)
[4] CLP HC / HCE (synthetic hydrocarbons / synthetic hydrocarbons + ester oil)
[5] CLP / HLP / E (Mineral oil / hydrolic oil / ester oil)

Diagram: Lubricant change intervals of oil inside gear unit

Consult the motor (maintenance) manual from the motor manufacturer for more specific and detailed inspection and maintenance instructions!

Malfunctions/Service

CAUTION!

Improper handling of the magnet device may lead to damages.
Potential damage to body and property!

- Any repair to GOUDSMIT magnet devices may be performed by qualified personnel only.
- Be aware that permanent magnetic material attracts ferromagnetic material with great force when it gets in reach of the magnetic field
- Consult GOUDSMIT MAGNETIC SYSTEMS customer service

Malfunctions

In case of malfunctions, consult the following table in order to determine the cause of the malfunction and its possible remedy. In case a specific malfunction can't be found in the table, consult the **GOUDSMIT Magnetic Systems** customer service.

Malfunction	Possible cause	Possible remedy
Magnet does not separate ferromagnetic (Fe) particles, or separates them badly	magnet bar is overloaded with Fe particles	Clean the magnet bar more often
	Not-attracted objects are not ferromagnetic	Check if particles to be separated are ferromagnetic, using a permanent magnet.
	Fe parts in the neighbourhood of the magnets lessen the Fe separation capacity	Check the installation parts in the neighbourhood of the magnets on magnetic behaviour by holding an iron part close to them. If there are magnetic reacting parts, then they should be replaced by non-magnetic parts, like SS.
Motor makes more noise than presumed normal, or has a higher nominal current [A]	Magnet bar tube is overloaded with Fe parts	Clean the magnet bar tube.
	An object 'sticks' between rotor and the housing	Remove the object from the system and clean the extractor.
Rotor is not turning	Electrical connection is not executed properly.	Fix the electrical connection.
	The safety latch switch box is not activated.	Make sure that the safety latch makes good contact with the safety latch switch box.
	Door is not closed properly	Close the door with securely plugged in safety latch and closed safety lock mechanism.
Magnets are hard to remove out the magnet bar tubes	Dents in the magnet bar tubes	Fix the magnet bar tubes if possible or else order a new magnet bar tube. Replace the rotor only with an undamaged magnet bar tube.

Customer service

Please have the following information available if you require customer service assistance:

- Identification plate (complete)
- Type and extent of the problem
- Time the problem occurred and any accompanying circumstances
- Assumed cause

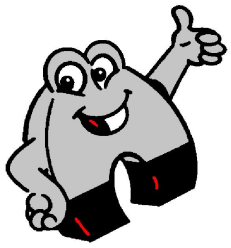
Spare Parts

As a result of the robustness and quality of **GOUDSMIT magnetic systems** products the device possesses high operational reliability.

If however a specific component requires replacement, the correct component may be ordered by quoting the type number stated on the *identification plate* or on one of the drawing(s) added to this user manual in the added data sheet.

The spare parts are mostly parts subject to wear, such as:

rotor, motor, door sealing and o-ring between motor and housing.



Following mutual consultation Goudsmit magnetic systems will arrange rapid and correct delivery.